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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,839	02/25/2005	Kazuyuki Oku	OKU7	2202

1444 7590 12/24/2009

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EXAMINER	
HENRY, MICHAEL C	
ART UNIT	PAPER NUMBER
1623	
MAIL DATE	DELIVERY MODE
12/24/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/525,839	OKU ET AL.	
	Examiner	Art Unit	
	MICHAEL C. HENRY	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 December 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12 and 17-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *17-22* is/are allowed.

6)☒ Claim(s) *12 and 23-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/01/09 has been entered.

The following office action is a responsive to the Amendment filed, 12/01/09.

The amendment filed 12/01/09 affects the application, 10/525,839 as follows:

1. Claim 12 has been amended. New claims 23-29 have been added. The rejection made under 35 U.S.C. 103(a) is maintained.
2. The responsive to applicants' arguments is contained herein below.

Claims 12, 17-29 are pending in the application

Claim Objections

Claim 12 is objected to because of the following informalities: The claim recites the phrase "comprising incorporating into a composition containing at least one unsaturated compound as an effective ingredient a cyclotetrasaccharide" which appears to contains a typographical error. It appears that the word "as" should be deleted from the phrase". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12 and 23-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the phrase "inhibiting a radical reaction in an unsaturated compound". However, the phrase renders the claim indefinite since it is unclear how a radical reaction can be in an unsaturated compound as opposed to inhibiting a radical reaction in which an unsaturated compound is involved or is a reactant. That is, it is unclear how a radical reaction can be in an unsaturated compound. Claim 12 recites the phrase "suppress radical reaction and thereby inhibit the formation of a peroxide of said unsaturated compound". However, the phrase renders the claim indefinite since it is unclear if the radical reaction that is being suppressed is the same or different from the reaction in which the formation of the peroxide radical of said the unsaturated compound is inhibited especially since suppression can include prevention. Claim 12 recites the phrases "incorporating into a composition containing at least one unsaturated compound as an effective ingredient a cyclotetrasaccharide" and "into a composition comprising one or more unsaturated compounds". However, the claim is indefinite since it is unclear if there is one or more incorporation or addition into one or more composition(s).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 12 and 23-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oku et al. (EP 1321148 A1).

In claim 12, applicant claims a method for inhibiting a radical reaction in an unsaturated compound, comprising incorporating into a composition containing at least one unsaturated compound as an effective ingredient a cyclotetrasaccharide represented by cyclo{→6)-α-D-glucopyranosyl-(l→3)- α-D-glucopyranosyl-(l→6)-α-D-glucopyranosyl-(l→3)-α-D-glucopyranosyl-(1→} or a mixture of said cyclotetrasaccharide and its saccharide derivative(s) into a composition comprising one or more unsaturated compounds selected from the group consisting of fatty acids, simple lipids and conjugated lipids and alcohols in order to suppress radical reaction and thereby inhibit the formation of a peroxide of said unsaturated compound. Claims 23-29 are drawn to said method involving the use of specific percent weight and type of ingredients.

Oku et al. disclose a method for inhibiting the reduction of active oxygen eliminating activity (which involves a radical reaction), which comprises a step of incorporating the inhibitory agent cyclotetrasaccharide comprising cyclo{→6)-α-D-glucopyranosyl-(l→3)- α-D-glucopyranosyl-(l→6)-α-D-glucopyranosyl-(l→3)-α-D-glucopyranosyl-(1→}into a plant substance with active oxygen eliminating activity in an aqueous system (see abstract and claims 5-10; also see sections [0004] to [0006]). Furthermore, Oku et al. disclose that plants antioxidants can also be incorporated into said composition (see abstract and claims 5-10; also see sections [0004] to [0006]). In addition Oku et al. disclose that the antioxidant can be enzymes, pigments, polyphenols, and vitamins (see section [0011] and claim 8). Also, Oku et al.

disclose that said composition can be as a food product, cosmetic, pharmaceutical (see examples, claims and entire reference).

The difference between applicant's claimed method and the method disclosed by Oku et al. is that Oku et al. does not explicitly disclose suppressing radical reaction and thereby inhibiting the formation of a peroxide of an unsaturated compound such as to prevent denaturation of an ingredient in said composition. However, as acknowledged by applicant, it is well known that products mainly composed of organic compounds such as lipids, dyes, and synthetic high molecules will be deteriorated in quality and function during their storage as a result of undesired odor occurrence, color changing, color deterioration, hardening, decomposition, quality changing, etc., and it is also well known that peroxides which are formed in food products and pharmaceuticals, through radical reaction, will deteriorate useful ingredients contained therein such as proteins, peptides and/or amino acids, and also augment the reduction of their quality and function (see last paragraph of page 1 to 1st paragraph of page 2 of applicant's specification). It should also be noted (as stated above), Oku et al. disclose that said composition can be as a food product, cosmetic, pharmaceutical that said composition especially food products contain ingredients or compounds including fatty acids and lipids that are unsaturated compounds.

It would have been obvious to one having ordinary skill in the art, at the time the claimed invention was made in view of Oku et al. to inhibit or suppress a radical reaction and thereby inhibit the formation of a peroxide of an unsaturated compound, comprising incorporating a composition of said cyclotetrasaccharide into a composition (such as a food or pharmaceutical) comprising an unsaturated organic compound(s) such as a fatty acid or lipid in order to prevent

an ingredient(s) such as a protein or peptide from being denatured in said composition by peroxides which are formed through said radical reaction regardless of which type of compound produces or causes the said radical reaction, especially since Oku et al. disclose that said cyclotetrasaccharide inhibits the reduction of active oxygen eliminating activity (which involves a radical reaction).

One having ordinary skill in the art would have been motivated, in view of Oku et al. to inhibit or suppress a radical reaction and thereby inhibit the formation of a peroxide of an unsaturated compound, comprising incorporating a composition of said cyclotetrasaccharide into a composition (such as a food or pharmaceutical) comprising an unsaturated organic compound(s) such as a fatty acid or lipid in order to prevent an ingredient(s) such as a protein or peptide from being denatured in said composition by peroxides which are formed through said radical reaction regardless of which type of compound produces or causes the said radical reaction, especially since Oku et al. disclose that said cyclotetrasaccharide inhibits the reduction of active oxygen eliminating activity (which involves a radical reaction). It should be noted that use of specific amounts or percent weight of said cyclotetrasaccharide or ingredients depends on factors such as the extent or severity of the radical reaction. It should be noted that applicant's claim to foreign priority over Japan 2002-256069 (08/30/2002) has not been perfected, since an English translation of the said foreign priority document is not filed.

Allowable Subject Matter

The examiner has found claims 17-22 to be unobvious over the prior art of record and therefore to be allowable over the prior art of record. The present invention relates a radical reaction inhibitory agent, comprising as an effective ingredient a cyclotetrasaccharide

represented by cyclo{→6)-α-D-glucopyranosyl-(l→3)- α-D-glucopyranosyl-(l→6)-α-D-glucopyranosyl-(l→3)-α-D-glucopyranosyl-(1→} or a mixture of said cyclotetrasaccharide and its saccharide derivative(s) and to method of using said agent. Though the compound of the present invention are similar to the compounds of the prior art, the method of claims 17-22 is not suggested in the prior art, nor is it obvious over the prior art. In particular, the prior art does not disclose treating the said disease or disorders, comprising administering said cyclotetrasaccharide composition to a person as recites in said claims.

Response to Arguments

Applicant's arguments with respect to claim 12 and 23-29 have been considered but are not found convincing.

The applicant argues that the method of Oku is a method for maintaining active oxygen eliminating activity of a substance which possesses active oxygen eliminating activity, that is, of a substance that removes active oxygen formed by oxidation of other substances. It should be noted that "a substance with active oxygen eliminating activity" is indispensable for the method of Oku, because Oku's method inhibits radical reaction through maintaining the activity of a substance with active oxygen eliminating activity." However, Oku et al. disclose that "active oxygen molecules such as superoxide which is an oxygen molecule having an unpaired electron and relatively high reactivity, and derivatives thereof including hydroxyradical and hydrogen peroxide (see page 2, paragraph [0002]). That is, according Oku et al. the active oxygen or active oxygen molecules includes peroxides that are formed by said radical reaction(s) involving said unsaturated compound. It should be noted that a suppression also includes an elimination or prevention of said radical reaction involving said peroxide. Furthermore, Oku et al. disclose a

method for inhibiting the reduction of active oxygen eliminating activity (which involves a radical reaction), which comprises a step of incorporating the inhibitory agent cyclotetrasaccharide comprising cyclo{→6)-α-D-glucopyranosyl-(l→3)- α-D-glucopyranosyl-(l→6)-α-D-glucopyranosyl-(l→3)-α-D-glucopyranosyl-(1→}into a plant substance with active oxygen eliminating activity in an aqueous system (see abstract and claims 5-10; also see sections [0004] to [0006]). Furthermore, Oku et al. disclose that plants antioxidants can also be incorporated into said composition (see abstract and claims 5-10; also see sections [0004] to [0006]). In addition Oku et al. disclose that the antioxidant can be enzymes, pigments, polyphenols, and vitamins (see section [0011] and claim 8). Also, Oku et al. disclose that said composition can be as a food product, cosmetic, pharmaceutical (see examples, claims and entire reference).

The applicant argues that Oku's method does not directly inhibit radical reaction per se but Oku's method inhibits a reduction in activity of a substance that has active oxygen eliminating activity. There is nothing in Oku that teaches a method for inhibiting the formation of peroxide by suppressing radical reactions directly with the cyclotetrasaccharide. However, Oku et al. method does inhibit radical reaction. That is, Oku et al. disclose a method for inhibiting the reduction of active oxygen eliminating activity (which involves a radical reaction), which comprises a step of incorporating the inhibitory agent cyclotetrasaccharide comprising cyclo{→6)-α-D-glucopyranosyl-(l→3)- α-D-glucopyranosyl-(l→6)-α-D-glucopyranosyl-(l→3)-α-D-glucopyranosyl-(1→}into a plant substance with active oxygen eliminating activity in an aqueous system (see abstract and claims 5-10; also see sections [0004] to [0006]). Furthermore, Oku et al. disclose that plants antioxidants can also be incorporated into said composition (see

abstract and claims 5-10; also see sections [0004] to [0006]). In addition Oku et al. disclose that the antioxidant can be enzymes, pigments, polyphenols, and vitamins (see section [0011] and claim 8). Also, Oku et al. disclose that said composition can be as a food product, cosmetic, pharmaceutical (see examples, claims and entire reference).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Henry whose telephone number is 571-272-0652. The examiner can normally be reached on 8.30am-5pm; Mon-Fri. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael C. Henry
December 18, 2009.

/Shaojia Anna Jiang/
Supervisory Patent Examiner
Art Unit 1623